

Name: _____ Period: _____ Date: _____

Solving Polynomial Equations

The expression $(x + A)$ is a factor and $(x + B)$ is a factor.

$$y = ax^2 + bx + c$$

$$y = (x + A)(x + B)$$

To solve an polynomial equations the product of the binomials is set to zero, that is, $y = 0$. $0 = (x + A)(x + B)$

Zero Product Rule: If x and y are real numbers such that $x \cdot y = 0$, then $x = 0$ or $y = 0$.

1. $y = x^2 - 14x + 48$

a. Set $y = 0$.

$$0 = x^2 - 14x + 48$$

b. Determine the factors, that is, the product of binomials:

$$x^2 - 14x + 48$$

$$(x - 6)(x - 8)$$

c. Set the product of binomials to zero.

$$(x - 6)(x - 8) = 0$$

$$(x - 6) = 0 \quad \text{or} \quad (x - 8) = 0$$

$$x = +6 \quad x = +8$$

2. $y = x^2 - x - 72$

3. $y = x^2 - 20x + 125$

4. $y = x^2 - 30x - 125$

5. $y = x^2 + 28x + 180$

6. $y = x^2 + 10x - 180$

7. $y = x^2 - 6x - 135$

8. $y = x^2 - 24x + 135$

9. $y = x^2 - 10x - 39$

10. $y = x^2 - 15x + 44$